



Tasmanian Field Naturalists' Club

EASTER CAMP-OUT

1911

To Deep Hole, Southport

REPORT ON CAMP-OUT

By E. A. Elliott, Hon. Secretary to Camp

NOTES ON THE BOTANY

By L. Rodway, Government Botanist

GEOLOGICAL NOTES

By A. D. Mackay, B. Sc.

NOTES ON THE BIRD LIFE

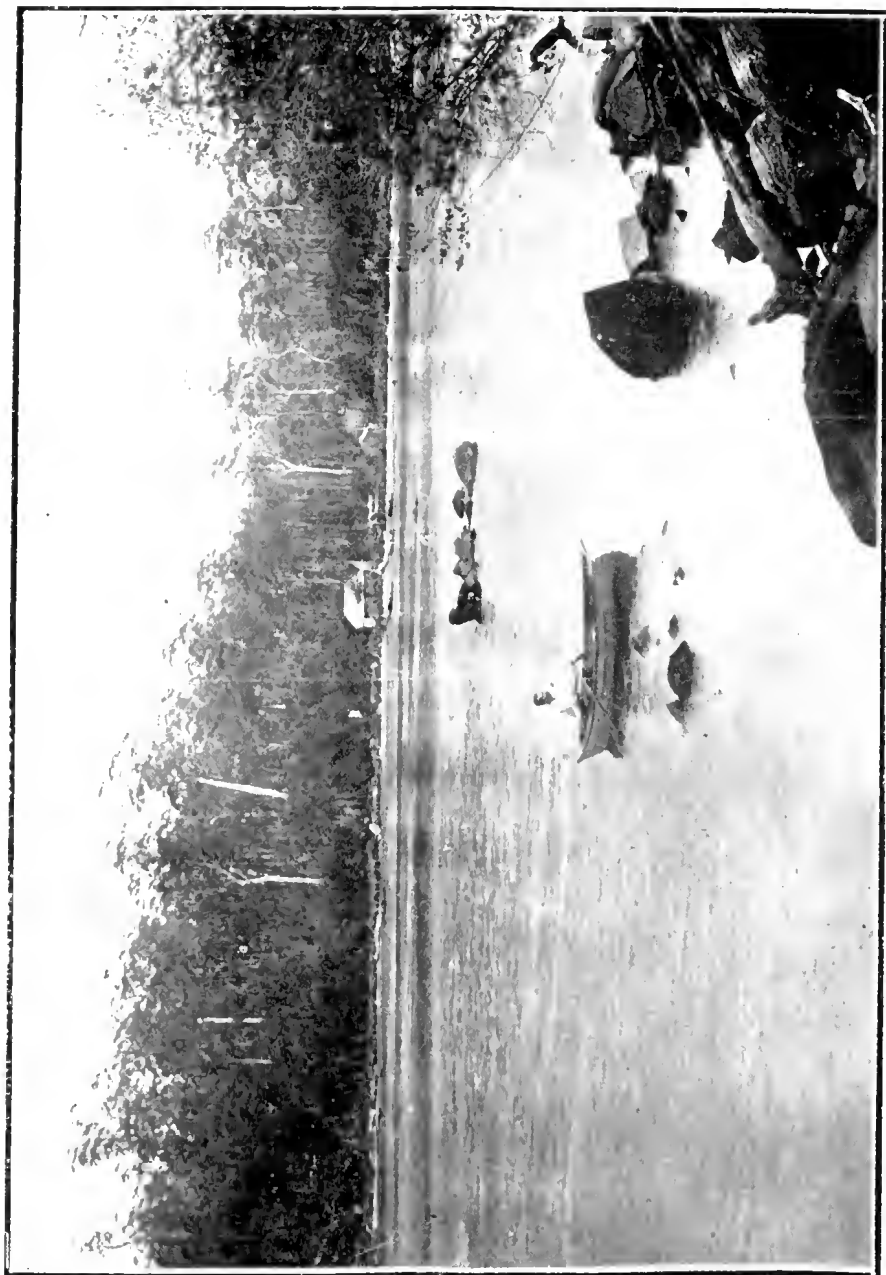
By Robt. Hall, Curator Tasmanian Museum

Reprinted from "The Tasmanian Mail."

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THE END OF THE WORLD



ROCKY BAY, RECHERCHE.



AT BREAKFAST.

Tasmanian Field Naturalists' Club

EASTER CAMP-OUT, 1911

By E. A. ELLIOTT, Hon. Secretary.

It is pleasing to record that the seventh Easter camp-out of this club has been successfully held, the site of the camp being Deep Hole, at Southport. It may be interesting to mention first the sites of earlier camps, and to give the numbers present:—

- 1905.—Bream Creek; camping party, 9.
- 1906.—Cole's Bay (Freyinet Peninsula); camping party, 40.
- 1907.—South Brunni; camping party, 27.
- 1908.—Maria Island; camping party, 27.
- 1909.—Wineglass Bay (Freyinet Peninsula); camping party, 84.
- 1910.—Cole's Bay; camping party, 97.
- 1911.—Southport, camping party, 60.

During the last three camps ladies have attended.

It will be seen from the above that in comparison with former years this season's camp was no mean one, and it would doubtless have proved a record if the site had not been changed several times, owing to unforeseen circumstances. Port Davey was first fixed upon, but a steamer could not be procured to convey members there. Fortescue Bay, near Port Arthur, was agreed upon as an alternative site, but this was abandoned in favour of Recherche. Then opinion seemed to lean more towards Southport as a camping ground, so that the camp was finally settled there. The s.s. Togo was secured to take most of the party, and Mr W. Golding took several in his steam yacht Edina. The Edina remained at the camp, and was placed at members' disposal for dredging, as well as for taking parties to places of interest. There were also the motor-yacht Fancy, which was used by fishing parties, and two smaller boats. These four made up the camp flotilla.

Leaving Hobart at 11.15 p.m. on Thursday, April 13, and proceeding down D'Entrecasteaux Channel, Deep Hole was reached in four hours time. Disembarking was at once proceeded with, this being helped by the light of a full moon. A large fire was started on shore, and here the ladies and a proportion of the men and juniors grouped themselves to

wait for daybreak, whilst parties explored the vicinity for camping grounds, or carried goods along the jetty. The laborious and more or less exciting landings at former camps by boating the members and their impedimenta from the ship was dispensed with in this case, owing to the fact that a fine jetty used for stacking timber for transhipment to various parts of the world was erected there. Deep Hole obtains its name from being a fine anchorage in a more or less shallow bay. Some huts, commodious and clean, close to the jetty were found to be unoccupied, and were used as cook's quarters. The ladies' tents were erected on the south side, and were bordered by one stream; the men's tents, scattered towards the north, were bounded by another.

Immediately after breakfast had been enjoyed parties set about numerous duties in the camp, and when these were done, left in small detachments for a walk across the hills to Southport Lagoon. This is a large sheet of shallow water, with several islands, and in the background the fine La Perouse range of mountains shows up with their snow-capped peaks—snow being on these mountains for nine months of the year. On one of the headlands close to the entrance to the lagoon is a monument erected in memory of the many who perished in the convict ship George III., which struck a submerged rock now called after the ship, in 1833. Most of the party visited the monument, and several photographed it.

Trips were made to Recherche, where the Catamaran coal mines and sawmills were visited, and the scenery en route was much admired. Sawmills are numerous in this part of the country, some of them being within a few miles of the camp. Not one was working fully during any part of our visit, but descriptions were given, showing the manipulation of logs in their conversion into sawn timber. The lengthy tramways into the forests were frequently availed of by parties from the camp.

The chief excursion by members of the camp was that made to the Ida Bay Caves, when the whole party of 57, leaving only the three cooks in camp, went

up the Narrows to the Lume River. Most beautiful scenery was viewed all the way on the water, and made one wish to see more of that part of the country. Fifty-two formed the party to the caves, and much credit is due to the ladies and younger members of the party for their endurance on a decidedly fatiguing trip. Unhappily no one in the party was sure of the track, although some had been there several years ago, yet the timber-getters had so altered the character of the country that the way was lost, and for some time the party was bushed. In the end, however, the caves were found, and a short cut through virgin forest was made to them from the tramine where the party was waiting. The entrance to the caves is magnificent, about 200ft. of cliff being surrounded by tree ferns and other beautiful foliage. A creek runs into the entrance, and as this is followed vault after vault is discovered, and many of them are fringed with stalactites hanging from the roofs or ledges on the walls. In several parts stalagmites rise from the floors. The return that day to the launches was late, and part of the journey on the water was by moonlight—it was a very tired and hungry party which sat at table in camp that evening.

During the camp the fishing done was poor. Seining on the beach resulted in only a few flounders being taken, and fishing from boats in the bay and at the Actæon Islands gave no better luck. None of the fine hauls taken on the East Coast trips cheered the fishers and helped out the harder.

The scientific results are given by the experts who attended, but it may be here stated that dredging was only undertaken in shallow water, and with very poor results. The botanists of the camp had more to work at, and several good collections were made. The geology and bird-life will also be given in following reports.

On the whole, the camp was a very successful one, and many things worked together for the enjoyment of all.

BOTANICAL NOTES.

(By L. Rodway, Government Botanist.)

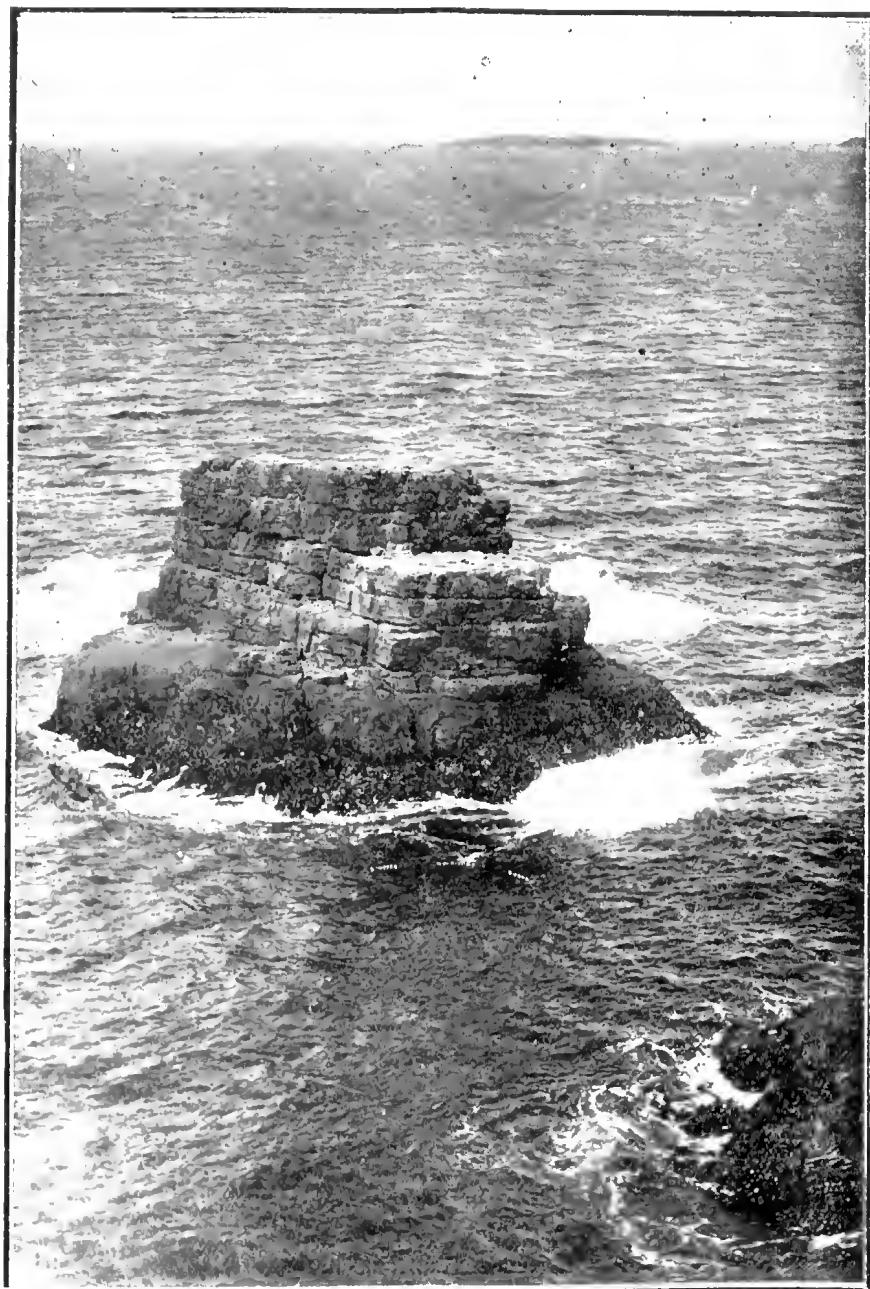
The botany that engaged the attention of students at the Easter camp-out was fairly extensive, ranging from Recherche to Ida Bay Caves. It was all the more interesting to those living in Hobart in that it included many flowering plants commonly associated in our minds with the West Coast, and not found near the capital. Climatic difference was clearly indicated by such plants as myrtle, lau-

rel, sassafras, and horizontal growing at sea level. Too much must not be inferred from this, for it is probable that the unfitness of our home climate to properly support these forms is due to the destructive habit of man clearing out vegetation that would otherwise have prevented injurious winds from reaching the soil.

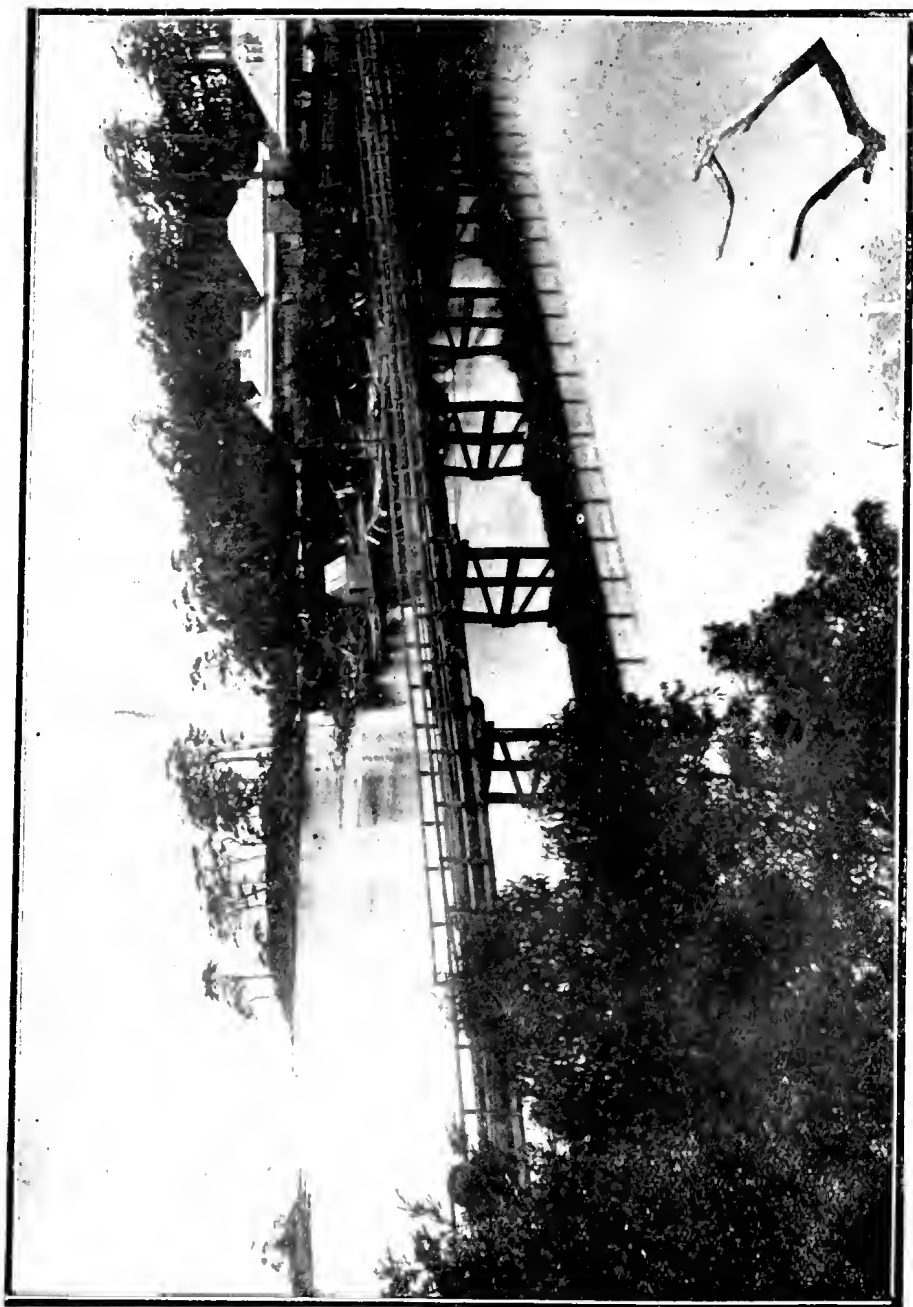
Two proteas were met with that are typically western, namely, the native plum and white waratah. Plum is uncommonly like laurel when in foliage, but the flowers are small and of a very different structure, and the fruit is round, fleshy, and purple, structured much as a plum. It is not pleasant to the taste. White waratah is really related to waratah, but not a bit like it. The flowers are small, white, and numerous, arranged closely along erect, white stalks. This plant is fairly common on the damp hillsides in the vicinity of the caves. Both plum and white waratah are of exceptional interest, in that not only are they confined to the western part of Tasmania, but neither they nor any very close relative are to be found in any other part of the world. They, like many other Tasmanian plants, are remnants of a lost flora that once covered a now lost land.

Eucryphia grows abundantly. It is a most symmetrical tree, and bears large, white flowers during some months of the year. In low lands it is generally in flower at Easter, but in many places it is found flowering as early as Christmas. This is often called leatherwood, but it is not the original leatherwood of the coast. Horizontal is closely allied to Eucryphia, though its small, obscure flowers do not suggest this at first sight. It comes further east than most of the West Coast stuff, as it occurs on Mount Wellington, Oxbridge, and Mount Field. In anything but very wet and protected spots it is persistently erect and slender. In suitable spots where moisture, shade, and stillness encourage, it will grow with great rapidity till the weight of the long bole overcomes the resistance at the base, and it proceeds to lie down. Now, from every node there grows up a strictly erect and slender branch. When the mass of these acquire sufficient length to give them the power they twist the parent stems and lay themselves preëminent. Under suitable conditions this will produce a perfect network of impenetrable stems for thirty feet above the ground.

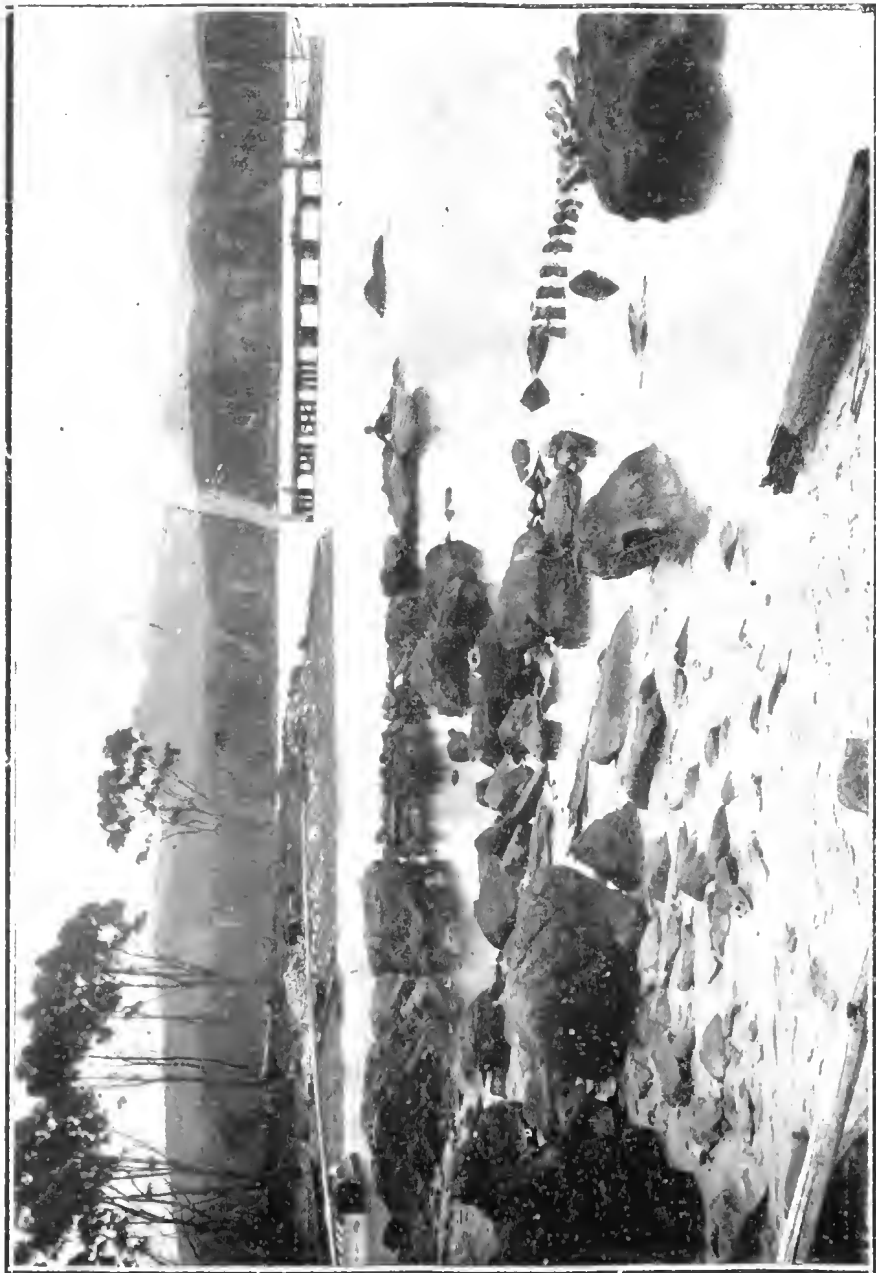
The district offers a great variety of the heath family. The prevailing Epacris is not the common heath, but one that has not yet received an ordinary name. From the locality where it makes its home it may be called swamp heath. It is somewhat like our rocket, but the



"STACK OF BRICKS" AND SOUTHPORT ISLAND IN THE DISTANCE.



CATAMARAN, RECHERCHE.



LA PEROUSE FROM "THE DIGEST."



GROUP OF MEMBERS WITH



ATTENDED THE CAMP.



THE BEACH AT DEEP HOLE.

leaves are broader and more robust, and the flowers, though very similar, are less plentiful along the stems. Climbing heath with its beautiful pendent, crimson flowers, was in quantity wherever the wood was dense and damp. Two shrubs bearing beautiful puce berries were plentiful. Near the caves they were exceptionally fine. The commoner one is the cross-leaved puce-berry. The other, which was more plentiful a little way up the Catamaran, is Gunn's puce-berry. On the coast many of the party gathered fine specimens of the maroon fruited *Billardiera*. This form is almost confined to the immediate vicinity of the sea, but not absolutely so, rarely it has been found inland. If the seed of this has its coat lightly filed and then soaked in hot water for some hours it will germinate almost at once. There is one unfortunate feature about it, namely, it does not always come true to colour. The seedlings often produce berries of a dirty purple tint. Near the sea, in the vicinity of the lagoon, was found the coastal scented bush. There are many forms of this, and it is yet a matter of individual opinion where specific separation should come in.

The track from the Lune to the caves passes along a swampy button-grass plain, and here was found extensively the beautiful little butterfly plant. The flowers, as usual, were usually two, purple, on top of a slender stem a few inches high. Occasionally specimens with white flowers were seen. The plant, when growing in mud, develops few or no green leaves, for the plant is carnivorous, and the leaves are specially adapted to supply it with animal food. The leaves, especially in water, are threadlike, and very divided; they have the appearance of lateral shoots, but are true leaves. Upon branches of these leaves are developed peculiar little traps, specially suited to catch small animals; they are roundish, about the size of a medium-sized shot, and have a wonderful little trap-door, allowing an animal to enter, but preventing its exit. The inside of the chamber has on its surface two kinds of processes. One kind, which are many and minute, look like miniature racks; the other are small papillae. The rack-like objects appear to be special sense-organs for telling the plant when there is a digestible beast in its pouch; the papillae then secrete an enzyme that converts proteid into a soluble condition. The proteinaceous parts of the animal are accordingly dissolved and absorbed, to the benefit of the host, only the chitinous portions of the prey being left in the sack to tell the tale.

In the heathy country about Southport the curious *Campynema* is common. It

is an erect little herb, a few inches high, with one or two erect green flowers; there is one strap-like leaf arising from the base of the stem. No one would be taken by its beauty, but a botanist should rave over it, for it seems so isolated. It is only found in Tasmania, and nothing like it occurs anywhere else. It seems to be distantly related to the iris family, and no farther from the amaryllids; it seems too much to make a family simply for its reception, so it finds any place where temporary convenience suggests. Tasmania is exceptionally rich in endemic plants, and many romantic theories may be erected on this fact, at least one of which will probably be true. One little fern was met with that drew forth the admiration of all taking an interest in plants; it was *Hymenophyllum marginatum*. The leaf is quite simple, about half an inch high, with a well-developed rib, and a thickened margin. It looks for all the world like one of the ligulate liverworts, and no doubt is often overlooked on this account. Hitherto it has only been recorded from few places, and now "near Ida Bay Caves" must be added to them. Mosses and liverworts, fungi, and lichens abound in the dense forest, but there is no room for them here.

Southport and the neighbouring coast has been a favourite collecting ground for seaweeds. Many interesting forms have been gathered here in days gone by, principally by C. Stuart, and they were published by W. H. Harvey in his splendid work on Australian Algae. Unfortunately, pressure of time prevented us from devoting much time to dredging, yet we gathered some good plants, chiefly between the Acton Island and George III. Reef, in twenty fathoms of water. The best were *Enpilota jeannerettii* (Harv.), Schmitz, *Polysiphonia hystrix* (Harv.), *Thamnoclonium claviferum* J. Ag., *Amphiora charoides* Lamour., *Bellotia eriophorum* (Harv.), and *Caulerpa cactoides*, R. Br. The last was the most interesting take, as it had not previously been recorded from Tasmania.

GEOLOGICAL NOTES ON THE SOUTHPORT DISTRICT.

(By A. D. Mackay, B.Sc.)

At the camp, geological exploration was carried on under a disadvantage. This class of work requires more time than could be given, and, moreover, the wooded nature of the country so prevented observation of the underlying rocks that these notes must necessarily be imperfect.

So far as could be ascertained, the series exposed in the district is as follows:—

9. Slag heaps.
8. Native shell mounds
7. Raised Beaches.
6. Diabase.
5. Fingal series.
4. Ida Bay series.
3. Southport series.
2. Limestone.
1. Quartz grits.

1. These quartz grits were found apparently underlying the limestone at the Ida Bay caves. They are composed of quartz particles cemented together by a substance like kaolin. They are not well exposed, owing to the vegetation.

2. At various parts of Tasmania, notably at the Great Bend of the Gordon River, we find exposures of limestone. This limestone is of lower Ordovician age, and has been named the Gordon River limestone. It is generally of a dark grey colour, regularly bedded, and somewhat argillaceous. At Mole Creek, Gunn's Plains, Ida Bay, and elsewhere, caves have been worn in it by surface waters. Those at Ida Bay were visited by a canoe party. At this point the rock is of a dark grey colour, with signs of metamorphism. It is hard and brittle, with veins of calcite. Though usually of fine texture, it may become of a fairly coarse crystalline structure when it is lighter in colour. No organic remains were observed, but it may be that the microscope would reveal them.

The caves themselves form a channel for a stream which flows into them. The outlet end of the caves is unknown. It would appear that a tributary of the Lune River, in the process of base-leveling its valley, exposed these rocks, which were sufficiently porous to absorb it. The water gradually dissolved the rock away, until a small inland drainage basin was formed. The track to the caves goes down what was seemingly the old creek valley.

A somewhat similar example can be seen forming at Circular Ponds, near Mole Creek, in the same limestone.

The caves take the form of a series of large halls, rather bare of stalactites, but with one or two massive examples. These stalactites are formed by surface waters percolating through the rock, and dissolving it. When exposed to the air in the caves they deposit crystalline calcite, both on the roof and floor. These projections continue to grow till they meet. The white secondary material contrasts strongly with the dark colour of the massive rock. One very interesting specimen was secured consisting of a

waterworn fragment of a stalactite. It showed the cone-in-cone structure, as well as the undulating surface produced by the water in partially re-dissolving it. A soft pink incrusting mineral found near the cave mouth was tested, and proved to be montmorillonite (Hydraus aluminium silicate).

3. At Southport, sandstones, mudstones, grits, and shales are exposed of Permian-carboniferous age. The sandstones are light-coloured, and show spangles of mica. The shales are of a grey colour. These beds resemble the Knocklotty series, which come between these and the Ida Bay series in point of age.

4. The Ida Bay series were not inspected by camp members. They consist of coal-bearing shale and sandstone.

5. Immediately above the Ida Bay series are the beds belonging to the Recherche basin of the Fingal series. These are known as the upper coal measures. A party visited the Cutamarian colliery, and by the courtesy of the manager were shown round underground. The colliery is situated about a mile from the bay. The beds consist of sandstones and shales, with coal seams dipping north-west at about 10 deg. Two seams are known, an upper one 9 ft. thick, and a lower one 6 ft. thick. Only 5 ft. of the upper seam is at present being worked. Bands of clay occur in the coal, but are capable of easy separation. The coal is bright, and hard, and assays 66.69 per cent. fixed carbon, 25.27 per cent. volatile matter, and under 4 per cent. ash. It is claimed for this coal that it is the best in Tasmania; the assay of the coal from the Cornwall and Mount Nicholas collieries being 57.61 per cent. fixed carbon, 18.27 per cent. volatile matter, and 8.15 per cent. ash.

An interesting feature observed by the party was the local crushing in of the floor by reason of the superimposed weight.

6. Some time after the deposition of the upper coal measures the island was subjected to a great intrusion of diabase. This rock is taken to be of upper mesozoic age. It occurs in quantity in the south-east as the caps of hills. It forms the great central tableland, and is found in the north at Mersey Bluff, Port Sorell Point, and elsewhere. It is of medium grain and dark colour. No flow structure is visible. It is composed essentially of pyroxene and a basic feldspar (labradorite). While it is of basic composition, its silica contents being 52–57 per cent., it is typically free from olivine, which is a useful guide in field work as distinguishing this rock from tertiary basalt.

The rock has solidified in the form of dykes, laccoliths, and sills in the midst



SOUTHPORT LAGOON.



A PARTY ON THE MONUMENT THAT WAS ERECTED AT SOUTHPORT HEAD IN MEMORY OF
THE CONVICT SHIP GEORGE III. THAT WAS WRECKED THERE

of the older rocks. Unfortunately most of the contacts are obscured by vegetation, or overlying soil, but those which are seen show that the rock is of fine texture near the contact, while the sedimentary rocks show evident signs of metamorphism. The sandstones and shales of permo-carboniferous age become locally hardened into quartzites and chert, coal is injured, and faults are developed. Several fine sections showing these features can be seen near Hobart, such as Augusta-road, Huon-road, Bellerive, and Sandford.

One such example was seen at Southport not far from the "Stack of Bricks." The section exposed at the neighbouring cliffs shows a series of permo-carboniferous mudstones and shales horizontally bedded at the western end, and inclined and dipping about 25 degrees west further east. Here they can be seen to be lying on diabase, which continues to the channel. The igneous rock is of fine texture at the contact, while the sedimentaries have been so locally hardened as to give rise to a small promontory.

When such a laccolith is exposed by denudation the igneous rock, being harder than the sedimentaries, is eroded more slowly. A mountain is formed often surrounded by a ring of sedimentaries. Mount Wellington is such an example. In other cases the locally-hardened sedimentaries may be left as a wall running round the central core. I am informed that Adamson's Peak and Mount La Pelouse are examples, but cannot speak from personal knowledge.

Near the George III. monument some specimens were obtained of a rather decomposed portion of the diabase, but interesting as plainly showing twinned crystals of feldspar. The rock is here of slightly coarser grain than is usual.

In cooling this rock cracks, and frequently assumes a columnar structure. The Organ Pipes on Mount Wellington are an example. These cracks afford passage for waters, which decompose the constituent minerals of the rock, and redeposit various substances in these cracks, such as magnesium and calcium carbonates, limonite, and hydrous silicates.

7. After the diabase intrusion the country suffered from a prolonged denudation, which is still proceeding. Oscillations of land and sea followed, during which clay and leaf beds have been formed. The beds seen at Sandy Bay are an example. At a later date basalt was poured out over a great part of the island. The rock exposed at the Alexandra Battery, near Hobart, belongs to this. Subsequent elevation of the land surface has given rise to the deep gorges in the north and west, while still later depression has produced drowned valleys. Examples are the

Tamar in the North, and the Derwent and Huon in the South. The various bays in the south-east of the island would result from the same cause. A slight elevation has caused raised beaches. These are visible all along the North Coast, at Wingglass Bay in the east, and at Southport and Cox's Bight in the south. The flat land lying round Deep Hole and Southport Lagoon is a familiar example to camp men. The camp was established on it. It is of a very sandy nature, and the sand has heaped it into sand dunes, which are slowly travelling seawards. The advance is retarded by the bushes growing on the sand, but their shape is frequently typical. The best example seen was near the George III. monument.

8. At various points on the coast line shell piles are found, together with aboriginal worked flakes. The heaps are marked from natural ones, consisting invariably of edible varieties only. What may be an example was seen not far from the camp.

9. A deposit which may, perhaps, be worthy of mention in connection with the camp is the pile of slag at the pier. This slag is neither natural nor Tasmanian, but apparently has been brought from South Australia as ballast for ships. The heap also contains pieces of tertiary basalt, sandstone, and quartzite.

Resources.

While there is no reason why mineral deposits should not be found in the pre-Devonian rocks (the quartz grits and limestone), no signs of mineral were seen. The limestone, however, is hard enough to be used as a building stone. A sample of the massive rock from the caves took a high polish. Further, when the rock is burnt it provides a very good lime. The lime which is produced from these beds at Gunn's Plains and Beaconsfield finds a ready sale.

The coal which is mined in the Lower Mesozoic measures is of good quality, and should prove of great importance. The water carriage is good, but harbour facilities are poor. It is to be hoped that the near future will see this industry successful.

The Diabase is used in Launceston for road metal and as a building stone. As it is a very tough rock, it is useful for works where dressed faces are not required.

The soil of the district is rather poor, but may suffice for apple-growing. It is quite capable of producing splendid timber, however, which deserves to be better looked after than it is. It is noticeable that many of the trees and shrubs found on the West Coast occur here.

In addition to these resources the scenery is of such a nature as to make the trip quite worth the while for tourist-its accommodation was provided. Adamson's Peak and Mount La Perouse are both fine mountains, with pretty gullies and waterfalls. The Ida Bay Caves also deserve attention.

BIRD LIFE NOTES.

(By Robert Hall, C.M.Z.S.)

Southport is not the most inviting place the world has to offer the man who has an interest in bird life; it lacks the rich lagoons that give food in abundance to the wading birds, and the neighbouring hills are not well endowed with fruit-bearing trees, or insects in fair quantity, to provide for passerines in general. Hope lay in the Southport lagoon for members of the plover family, but this was not realised. We had a reasonable expectation of seeing the last of the migratory birds before they started on their journey to the far north. Every year at this season (April) the *tringas* and the golden plovers set out for Northern Siberia; they have spent the summer in the South of Australia, where they have hunted the great lagoons for food, and when April comes the longing for the old home takes possession of them. It is then that they set out on their 8,000 miles' flight, passing along the east coast of Australia, through Northern New Guinea and Manchuria, arriving about three weeks later in the "frozen north." Here they await the melting of the snow before proceeding further on their way. The snow melts at the rate of 1,000 miles a week, and within five weeks of the birds having set out from Southport they have arrived within the basin of any one of the great N.E. Siberian rivers.

These were the birds in which we were interested, but we were only able to record the fact that they had left. We looked for another interesting water bird, Richardson's skua gull. It, too, nests in the northern hemisphere, but occasionally one finds stragglers at this time of the year in the estuary of the Derwent; this year we could find none.

The silver gull (*Larus novae-hollandiae*), fortunately, was free from the worry of its parasitic cousin, the skua. It paddled quietly about the fringe of the Southport lagoon. A gull-like bird, twice the size of the silver species, flew round the margin of the bay, close by our camp. It was the young of the pacific gull. During its first year of life it is brown. If we visit the

same camp next year we should probably find this bird brown and white. If it were still about the camp on a third year's visit the light brown would have disappeared—it would be mostly snow-white, with an orange bill.

The young of a closely-allied species (*Larus dominicus*) has been known to mature in one year, but this appears to be quite exceptional. Two members of our party visited the Aetern Islands, bringing back specimens of two other sea birds, the fairy penguin and the short-tailed petrel. This petrel (*uffinus tenuirostris*), known to many as "mutton-bird," was found in burrows of the ground, in an interesting stage of its life history. The whole of the downy plumage was being pushed away from the bird by the tips of the coming "adult plumage." The young were now being temporarily deserted by their parents; they appeared to be just one mass of oil and feathers, and the parents were encouraging them to leave their nests by staying away from them for ten days. Without a fresh supply of food, the young would have an opportunity of thinning off, and finally in the twilight leave for the ocean.

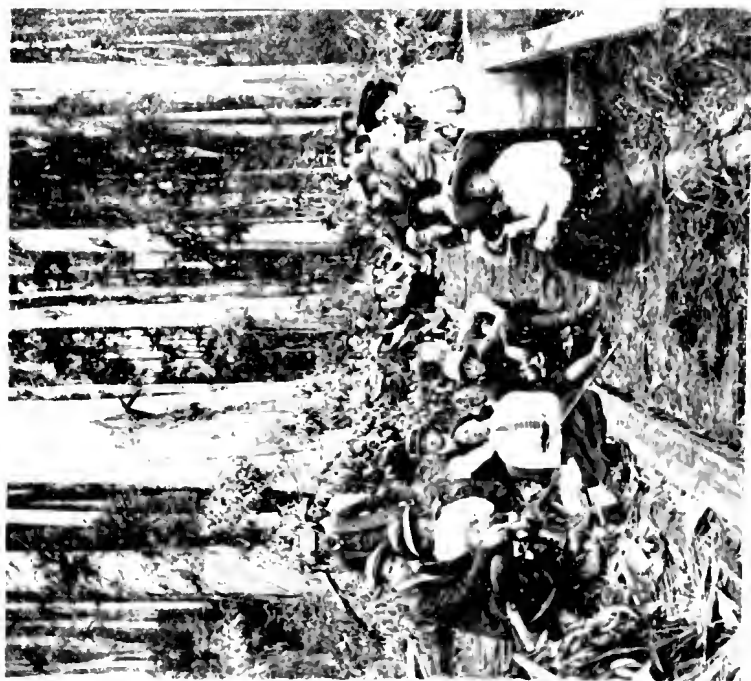
The pipit (*Anthus australis*) and the sombre scrub-tit (*Sericornis humilis*) were two other birds found on the Aeterns. Nearer our camp, which was pitched upon a raised beach, we met several families of the spine-billed honey-eater. They were the most common birds about the camp. The most noisy one was the crescent honey-eater (*M. pyrrhoptera*). One day we were visited by a flock of sordid wood swallows. It was a grief to us that this beautiful little bird should have been, apparently, ill-named. Apart from its grace of flight and usefulness of habit, it is interesting on account of its plumage. It has what are known to naturalists as "powder downs," i.e., groups of disintegrating feathers, hidden beneath the contour feathers.

We had expected to be free from our feathered friends of the city; but no, a flock of starlings came upon us, the *Sturnus vulgaris* of London and Robert. These hardy little fellows will fare better in this inclement climate than many another insect-eating bird.

Among the parrots, the yellow-vented species was fairly numerous. It was the only species we saw. Early on Easter morning we heard a solitary thrush, not the bird that "sings its song twice over," but the grey thrush (*C. rectirostris*) of our own woodland. In the early morning in the spring of the year this bird sings very finely. Had the birds of the district been at all numerous, we should have known the morning that we landed



THE BEACH AT DEEP HOLE.



A HALT ON THE WAY TO IDA BAY CAVES.



LANDING ON SOUTHPORT ISLAND.

as we stood round the camp fire between 4 and 6 a.m. As it was, we heard very little.

The butcher bird (*C. cinereus*) was abroad with its autumn song; occasionally the note of the dusky fantail (*R. densirostris*) would drift to us over the marsh. At sunrise came the call of the crow through the tree tops, while in the open timber below the scarlet-breasted robin might be seen. Away in the hills,

beyond the Narrows, we found the dusky raven (*Petroica vittata*). Our fishermen brought a white-breasted cormorant into camp, and told us that they had seen the large sea eagle (*H. leucogaster*) in the course of their wanderings. These two last closed the list of birds that we were able to identify with any certainty.

The few species we did see were sufficient to provide an interest and a pleasant holiday.



CAMP TOILET.

